Rec'd April 19

Rec'd
March 27/67

Dear Dr. Engelmann

I am ashamed of the length of time that my friend letter this time last year has lain in my portfolio of unanswered letters — but in the meantime I have had to run through many books, & among my garden & horticultural work have been attended to before Military Force — Perhaps the influence which my

Dear Mr Ridgway

Mon
March 5/10

he is time for you, – this also
labelled J. Mengéri in the
same paper, Rubus dis with
Kinds of Leaves

I have modelled the triple
Cuttle for Gen. Plants. Striking
Clear & quite Pretty – I was
rather afraid of the characters
of the Genus, Otherwise one such
good impression. Between such
Clearly-defined forms. – I have
quite kept up the
Preloranthus
Stemmulaneé.
Pedicellaria Prickly bad –
Leuchtenbergia Do –
Lemnocaltis
Dicoralis Do

Cereus
N. hystrix
Phyllocactus & Epiphyllum
N. phyllanthus
N. spatulatus
N. pitajaya
N. grandis
peruvianus.

Why is Phyllocactus classed as having pericarpel cells, in lieu of the usual cuticle?

Do you still collect cacti, if so the collection of plants in Kew would be most acceptable — an indication would any seeds of the rarer Cereus plants be. if fresh & good. prepared the same as you can.

Rules Hedgehogs from plants & shrubs, are we fish that come to my net.

Thanks for your correction of Candolle — I had only an older edition, & unfortunately

must have turned the upside-
down!

I hope that you have received
this last year (1866) Gray's Rehab-
I fear that the imp. 1865
(herewith enclosed) never reached
You sent for the Gov. Appr., - you
have been in the Appr. bill for
perpetuity, but the Board of Works
who issue them, I suspect omitted
it last year, for they sent me a few
months ago as Governor here.

In great haste

Yours

J. D. Hooker

Rec'd Nov 19th Postmark Nov 5th
Ans Dec 15 Kew Nov 24th/72

Hooker J. D.

My dear Dr Engelmann

You must have long in this point me also an unfaithful & not an ingrate correspondent; & I truth I am ashamed to tell who my pen to write to you. Sometimes hardly venture to do so, dear Prof. but I know that is friendly patience & long suffering. Good Botanical correspondents are "not as other men".

Your two letters of March 11 & May 3rd/71 came safe to hand as did the valuable box - with the grass for Baker. The Carex came also

in first rate condition -
& the valuable Pine cones -
P. Ellettii is quite new to
us - I should much like
to have seeds of it.
Pinus pinea pinkeon is also
growing with us, & matures fruit.
Perhaps box was sent
off at once.
Cones of pinus is also
claim for you.
Say in that I have a
pretty good amount to give
if what you have sent us -
Our fault I have & prize with
you is, that we are nothing
in return! - had you done so

I should not have so long delayed answering your letters, - as it is with you now time can what I can do for you.

I have just had our Cactus-House painted and repaired, & the collections are rearranged - they are still in high health & vigor - here I should like to show them to you. Baker continues his studies of Aquilegias & Iguanas, the cultivation of which Miss Saunders has taken up with his wonted skill enthusiasm & judgement.

My Botanical Memoir is nearly ready, after 7 years incubation, & the beauty of the Genera of Cactaceae is coming out - with the Rubiaceae by myself & the Compositae by

Bentham – both tremendous jobs – after their orders I hope that one may get a more rapidly, but my Photo entries increase as do my own & Bentham's years. & the work has not even paid the cost of printing! we printed it ourselves, that is – might be sold at the cheapest possible rate – Bentham liberally guaranteed the cost of production.

I shall be very anxious for a little form yr to say that I can forward & to ask for some seeds or plants for Kew.

Ever dear Dr Engelmann
Yours very truly
[signature]

I enclose with humiliation, a note from Baker that I had mislaid with arrears of my own correspondence.

Asa Gray 114
to Hooker (Copy)

Jany 15th 1873

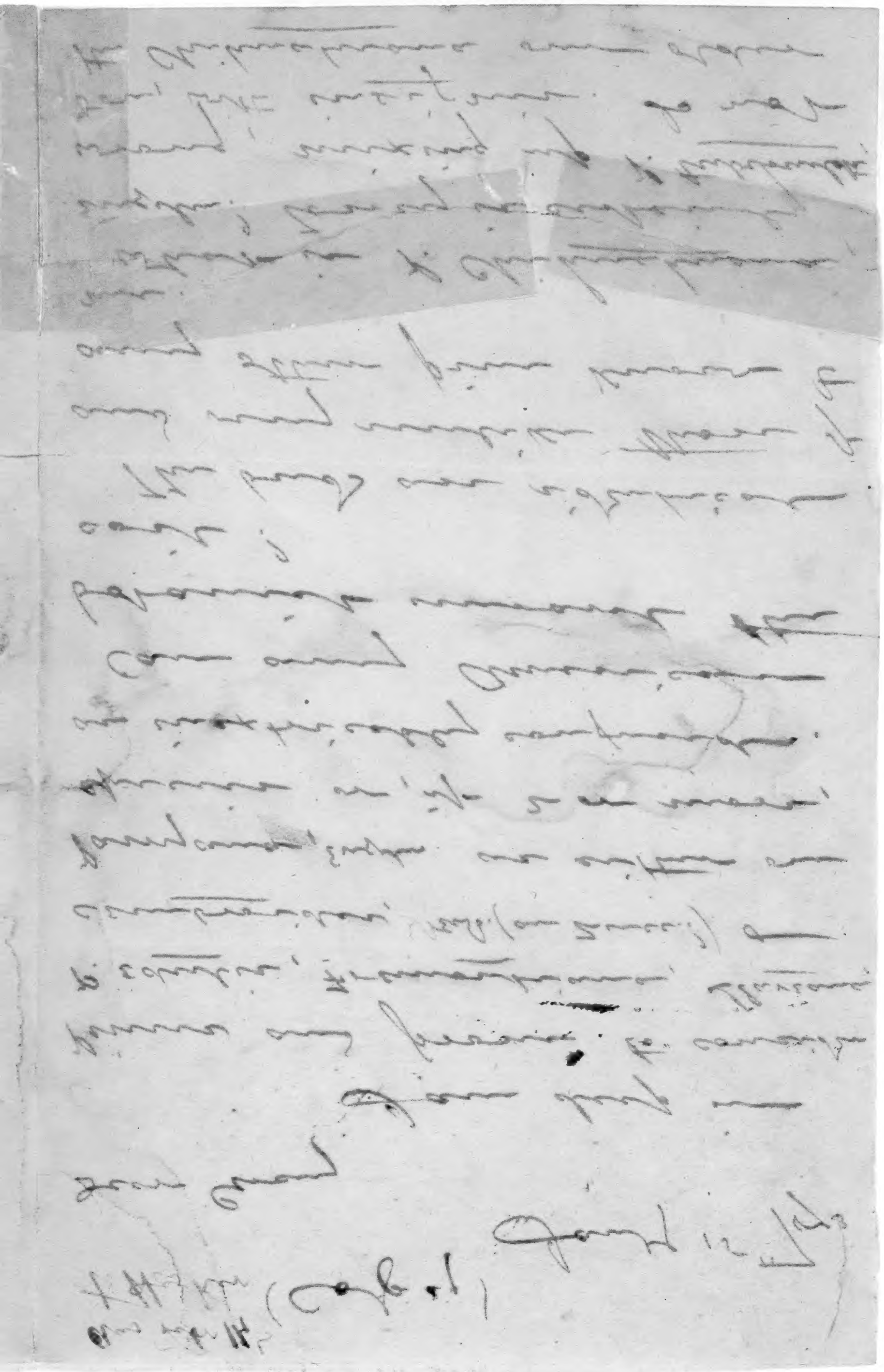
Dear Gray

I am deep in Pinus and prone to consider P. edulis, Fremontiana, Llaveana, cembroides, Nutt. (an Zucc.?) or Parryana, Engelm. as either one species or, if 2 or more, as inextricably confounded.

Can any American botanist unravel the coil?

The buds are identical and very unlike those of any other pine known to me.

What is P. Chihuahuana, Engelm.? Torrey is certainly wrong, mixing up P. tuberculata, Don, with insignis. Is not the Chihuahuana our older



tuberculata?

Pamij's P. Zonneyana is said to be Cordia tophosperma – an earlier name.

× × ×

J. D. Hooker

Rec'd March 30th
Ans April 9th

Rec'd March 14/93

Agnes Gilchrist
Rec'd

My dear Dr Engelmann

I am indeed obliged to you for your valuable letter on the Pines, which clears off a cloud of difficulties. I keep you over many a style. I am especially glad of the notes on the Nut Pines, which I suspected might be forms of one.

I have put the information in your letter into form as far as I understand, kindly revise it & then (as that) clearly understands it. There is a confusion about P. Maximowiczii, which I hope clear up. We had, want-

Dear Mr Mac of P. Torreyana,
Chihuahuana & Californian

It would be an immense
boon to European Botanists
if you would send your
new Dl Roots. & lead me
notes on the other American
species of Pinus & indeed
of the Conifers. - Posterity will
bless Asa Gray & the rest -
Men only who have grown
with the growth of these
departments of Botany can
master them.

The rarest case of your

Museum see, thanks to you,
beautifully named: but they
do not help me to name
the Garden specimens &
the newer species.
Do pray also help us respecting
of Quercus dolicholobus Oaks.
I have hoped on your thanks
for the Refugium to make a
Wilson Saunders -
I have got a little
collection of Ferns for your friend
which shall go at once ..?
cannot succeed to the names
but they are as good as
Baker can make them
I shall indeed return to you
for the short.
Beyond my thanks for procuring
me seeds of P. cuneatus & Sp.

P. Shiedtii, the forme is matter
tender with us, but it has
stood out for 10 years & more.
But Nipetum is now a splendid
collection. No end of grasses
from camp. Rose.; new cones
better!.

The box of Yucca seeds & rosettes,
with us most acceptable, the letter
for the Museum. You accounts
of the Mo. Pacific expedition is most
curious. Can you send me
specimen for N. Museum?

I think I am a most
unmeasurable beggar.

Or no more at present

Yr ever most truly

Recd Febr 25
Ans March 11

Feb 9/74.

My dear Sprague.

My many thanks for the interesting photographs of the species & the valuable prints for Kew Museum: also for your excellent paper which has troubled me to get over species together.

I have had fragments taken of all the specimens you distribute. We have them ourselves,

I hope that Officers here will

place them in proper - i.e. clear

an illustration sample as

possible.

Now I may ask for further

absence, information,

descriptions or observations if any

in the that you can

furnish shall be at

your disposal, that of

sending types which is

apparently Gosh. rules.

Mean delighted to

hear that you have
taken up the Gram. &
I hope that you will follow
it with Mr Griffin.
With united regards
I must subscribe
myself
M D Hooke

Rec Dec 16
Ans Jan 20

New York Nov 29/74

Dear Dr Engelmann

I am exceedingly obliged to you for the Abies concolor seeds which have arrived in capital order & which I do not doubt germinate well. Also for the Juniperus occidentalis & Pyrus angustifolia. How is with that?

will see the Confiss
of Colorado - You say there
are 10 Abietineae & 3
Junipers. When you
write again please
enumerate them - I
want much to
print a catalogue of
Kew Conifers but an
Etch adiffh should
first synopsis.
We are getting a nice
collection of Pines
Thanks much to-

yours truly -

Ogsmith

W. J. Stokes -


0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI
BOTANICAL
GARDEN

Aug 19/76

Dear Dr Engelmann

I have received long unanswered letters of yours by me - full of valuable information on the Yucca's. I thank you much for them & apologize for my long delay in answering them. During the last year the demands of the Royal Forest, of Government departments, & of Kew, together with household cares & cases devolving on the loss of my wife; have

overwhelmed me & threw
my communication with
friends overboard. Now I am
in the eve of permanent &
am clearing off old scores
as fast as I can

Your letter on Algaes
came to hand & I thank you
much for it. & for the
remarkable photographs.

We have no chemist of
the Abies fraxinifolia in
Portugal & the
plant is the cause of
trouble to make my Nurs

Y. Maximowicz could not
write and publish an
Thousand times for the
Scottish melanthera, it is a
very interesting discovery.
You prepare a Flora
also to hand to a much
important one, in
value of the has appeared
in "Nature".
I shall soon send you
list of our species — we
are now getting the sheets
together. Progress mean
at present for you in drying
Yours J. D. Hooker.

Rec Nov 19th
Ans Dec 14.

Ber. 2/77.

Dear Dr Engelmann

Many thanks for your kind letter & the most acceptable news. Would I have be down immediately. We have date a very fine collection of American Cactus plants & my father - here & there through the woods - second a second plantation, myself & the explanation below, which though you may see doing very well indeed.

Indeed it was from the want of rain in May that I left America & this without

visiting the Eastern States! but the fact is that my time was more than I had anticipated. Business at home where I left the new house requiring attention & the new Restaurant with much anxiety, & the Royal Society. And indeed since my return there and & repeat the engagements & seeing my friends in town & get through the arrears of correspondence & official work.

I expect you & Mrs Lyman & my Thing hoping to meet as my America journey & would give half my ears for

another trip will take you into the
forest.

Well, Gray & I have ourselves
up in the petrography & the study of
the Pines - Thursday the whole
time in Arizona & California &
Utah. We have got a great
deal of information for Bolander,
Kellogg, Orcutt, Brewer, Brandegee
& others - & with much the
same result.

Pines affords little scope for Fourth
Exception - the case of Jeffreyi &
Coulteri, being cones here all - Kellogg
& Kellogg & the characteristic cones of
the extreme Sierras from California:
viz. Jeffreyi cone smaller, more
numerous, more uniformly clustered.
Coulteri cone much larger, more open,
more solitary & projects outwards
outwards than backwards. As to
leaf & bark we could make nothing

of Eastern; & it would be unspeakably
~~that~~ there are the intermediate
degrees of cover - Jeffrey's opinion
gives the highest, & I am inclining
to it if the Rocky Mts
of Kalfornia for Shasta) can
be called mountains. I think the region
represents a cone, perhaps of
prominence of the best of form
the planet: & consider of which
it may be the cone with the
best-formed branches of, does
not grow on Shasta. - but does
mountain by Kings River.
Gen. Y. Mr Carter's plants of
2 (most) (centrifugal of our Mexican
but probably not the true planet)
is a very remarkable plant,
attains a stupendous size, &
extraordinary hardness of wood
which gets sand-plastered - in a
curious manner (as does the
wood of Juniperus Californica).

Abies Mengesii is common & variable in the Rocky Mts over all seen & inhabit the part of Oregon we visited! but I have a case from the extreme of the State & N. Sea. I am puzzled about Cy. elongata; Gray & I think it will prove to be traceable into a Mountain form of Mengesii - Have you no intermediates? Have any one bodies for intermediates? Pick up the elongata puzzle! for the life of us we could not discriminate more than two species in California & nil. Olympic.

The Douglasii (Douglas) is much better grounded, but the sides of the cone are much rounded, hence the Behrensii - Scales of Thomas say that it was a species intermediate between them.

The variations of the grey plant of P. grandis are wonderful, &

been in only character of very
fruit; but we never
or never find any
varieties in the old world. Its
conspicuous or uniform in
character but variable in size,
thirty more nearly in keep as
Nutty nobilis or amabilis.
P. Amabilis is much less variable
in a young state than grandis,
but equally stable when adult.
The leaf varies very in good deal
in size & the length of the
fruit. (nobilis) an ~~in obscure~~ includes (magnifica)
excentric fruits never saw them
in much excessive & nobilis & splendid
in Lambert figure or in fruited
specimens that we have here.
All California authorities are
agreed in there being but three
two species in the Sierra Nevada
& Pacific ranges & Van

to the last variation.

The Oregon grandis I do not know but we have in the garden. Pick with my dish specimen divaricata leaves, deeply notched at the tip. which is not unlike what Botanists such W. Gray from Minnesota as true grandis.

I have not looked at the nerve structure & the veinings of the leaves but hope that Mr. Nutt will send me specimen to serve as leaves without name or notes. & see what comes of them!

We have a fine set of the American conifers & Taxaceae. some of the varieties best from you & there are Pseudotsuga; perhaps 4-5 or more such in the new Pinetum which is systematically arranged throughout. Monticola cones

abundantly within, also tuberculate.
but not lanceolate at tips, nor
sebacious, many cases one bore
on one, multiple cases with
not unique which gets killed
by the first. or sow by seed. alternate, ~~[illegible]~~ more popular
& tubules grow apparently slowly.
Vicia Grandis grows rapidly.
Rubiteis has wide wide - balance
does abnormally - some form of rubiteis
or ~~[illegible]~~ at Rising Sun.
May when convenient send me
a Rutlitts) Pine seeds & acorns &c.
Mitchell
Pile me what I can do for
you or your son - with kind
regards & hope & 2 - Mrs
Lyman

Yr truly

Asa Gray

I am very glad to hear your
supplement to the Baker

Magnolia

Magnolia macrophylla

Rec March 19th
Ans. 21st

THE ROYAL SOCIETY,
BURLINGTON HOUSE, LONDON. W.

Rec March 4 78

My dear Engelmann

I have received your capital paper on Juniper, Cupressus Thurifera, & to day of Arizonian Pines - which have the interest on Excelsior, & I thank you very much for them & for serously studying contributions.

The Juniper of Stupendous age which I spoke of in the Sierra Nevada are, what you call occidentalis, & which is so unlike L. O. of Colorado, that I could not ~~cannot~~ conceive it to be the same species. In Colorado I saw 2 Juniper

1. J. ~~occidentalis~~ Virginiana (Pike Cty to Brandegee) quite like the Eastern plant in habit — but far more blue. It has had a rough Canadian name, here, on account of its blueness.

2. J. occidentalis, (Pike Cty & Brandegee) a low tree, always branching from the ground, the branches in tufts, wonderfully flattened, & outspreading Excentric, with hardly any back towards the axis of the plants. In California I have recognized but one tree Juniper, down in the Sierra Nevada, & was struck & great, but my busy with an Eastern Cedar Tree. amazing amazing to my eyes. — This tree that set directly from the tree into my branches, but was exactly like Virginiana but incomparably stunted.

I have a large branch of the
Cerasus home of Cafe Moon, &
will send you a bit if you
can be see it. It was equally
undoubtedly the Colorado & the
Eastern states Virginiana. It was
this I afterwards & in California,
wrongly no doubt.

It grew at a fresh previous Elevation
after the Rocky Mt occidentalis,
on rocks, & presented a most
remarkable appearance.

I have a branch of it — from
the "summit range" dark grooved
of the same black. & send a
wood-cut of this.

As to the Abies, alias Picea, I
grown over them. Grey has I think
told you that we saw long-
bearded cones of magnificent fine
~~Kings River~~ Kings river in S. California, & think

Visit all the California Observers in
the State & in San Francisco ~~[illegible]~~ were a great - That the
length of bracts formed no character
whatever. - After an inspection of
innumerable ~~[illegible]~~ specimens of many species, I cannot
doubt the utility & magnificence
of my own species.
As to Camden, subdelphinic & grandis,
I am not competent to decide without
a longer visit to the R. State. I saw
Camden at two elevations, both
of which Prof. (a botanist on
medicine) & Gray brought me
what he called Camden on
La Veta Pass 9-10000 ft. - I also
saw a Picea at 8-10000 ft at
Gray's Peak. which I supposed to
be the La Veta one. I have a great
mind to send you all my
specimens of Picea (Abies) Sheh
P.? - you can return them at

THE ROYAL SOCIETY,

BURLINGTON HOUSE, LONDON, W.

leisure. I wish I could say that
I have the matter clear yet.
Many thanks for the reference forms
of P. Rondeana (from Colorado?) & they
agree with what I saw in Colorado,
but in Sierra Nevada I have
a special paper from comes
of middle Rondeana seen, which is
rather abundant big on Sierra here!
The Colorado Rondeana is a more
strong tree, with shorter greener &
leaves. I should say that my
California one.
Brandegee has sent lots of
specimens of Mengii & Engelmanni;
comes to me & I am not much
the wiser. When I bring the
Garden specimens of the two Cupressus
I cannot but allow a wide
potential variation specimens,
& should be disposed to consider

Menziesii & Luphinus a race.
As to the silver Rocky Menziesii
this does not hold, we have
stuff silver-leaved & yellow green
leaved states & lots of them. —
Douglasii is just as variable ?
the Pacific coast case, (N. California near the sea)
of Menziesii is true — but not of
the Luphinus, ~~Oregon has~~ come, which is
~~Eno~~ with narrow scales.
You are quite right, P. Ralphsonii
is nothing but arietate with the
needles lengthened — cuttings.
Yes I ~~have~~ agree with you ~~[illegible]~~ quite
about albicaulis & flexilis — ~~both~~
~~other~~ both allied to Cembras. I am
delighted with a splendid
photograph of albicaulis just
arrived from Watkins.
You mention the wood of
~~Pseudotsuga~~ nobilis & macrocarpa as
good, we were always told that

They were worthless & it was much wonderful to see how walking rapidly they disappeared often lying in the forest. In 2 years they would be all gone. - They are shaped like this too, pressed on by white polypori fungus, (to which I gave Dr Hartnell's attention) ~~as they stand~~ which sends out Mycelium all through the living wood. & hastens decay. Now we were told that there was no material difference between the value of the wood of Grandis & nobilis (alias magnifica) - grandis of Shasta has dark bark when cut into, & nobilis of Shasta (excepted bark) red when cut into & is very much harder

Mr Nabb's address is Science Schools - Dublin.

We have a miserable Scrap of Abies grandis Terminalis, of about Twice a Scrapule - & no

Ab. pezoenis i Mex. both I with day a bit of the Cassia (so called I hope rightly) plants for you.

Photographs of Prof. I am trying for my Fellows at the Photographers.

Give my dear Engelmann with best respect to you dear

Ever yours

J. D. Hooker.

Rec Dec 20
Ans Jan 15

Dec 2/74

Dear Dr Engelmann

I have been very long in answering your letter, but in the first place I cannot force any species of Ph. Jeffreyi on Henderson with young cones though I fancy there must be some somewhere & in second I have been over-overwhelmed with work of all kinds & have little time to look at other Botany than N. American demands. I have still Arizona Oaks & Walder & Scarin N. Jeffreyi & Henderson cones

carefully & keep to do so
Dear. The best [necessary means]
character for this is the
blue foliage of Jeffreyi. which
grey & I could not make
any thing of in California.
The cones you kindly sent me
of Jeffreyi are I suppose the
Colorado plant - which appears
to me to be a different form from
the Californian & typical of a
drier climate - always [Dry Rocky Mtn Climate]
a small cone.
I have found a man here
in England who really [illegible]
in growing pines well, [well]

resin canals of the leaves. His name is Sym & he is a freeman to the man at Alexandria but worthy of a better place. He has been correspondg with me about Abies Mengziesii of which he points out that the Colorado form differs from the more Western in the more lax flattened leaf which is more like that of nobilis & Alba. In the course of comparing specimens for him I came across your observations in the Rev Botanical which are of the greatest value. You seem to think that some of the Rocky Mt Abies of Engle & my friend Engelmannii. I have not looked yet at the cones: the Museum (the Mob.[illegible]) specimens have no cones & did you judge by cones or by foliage? The trees may be distinct

Missouri Botanical Garden
George Engelmann Papers

& certainly after carefully noting & agree
observing I am decided in opinion
that the Brandegee or to the
distinctness
distinctness of Engelmann which
is the approximate species plant;
but when I see the prodigious
variations of our common
species I queer.

I have as much difficulty as
Every with the relative amelioris
N.Y. Bot. I like your arrangement
of them very much & do not
doubt but that it represents
things — but I really should
like to know more of the
ranges of the species before
making up my mind. A. concolor
seems very distinct, but I am
puzzled about S. albolapsis. It
would be most inappropriate that
a man like Brandegee who knows
the Colorado forms should write

2

Date Dec 2? 1878

The Forestry Wyoming I delay X
The Mr. detrimental North-
of Denver - The great
break in the forests of the
R.M. which occurs right-angles
the range is probably accompanied
with changes of vegetation.

I hope very much that the figure
with work at these Mines from a
horticultural point of view &
later also from a consideration
of the three volumes have written
& the Alabama Observer for -
I have offered in my little
aid that I can give - Gardiner's
work is worthless I think in
both horticultural & botanical
point of view.

I was so enchanted & glad
your arrangement of Juniperus,
though perhaps will cause
regretting the one I dispose
to the Californica & occidentalis

I suppose other people along our
South must have seen
it & I have written to
him about it.

If as I hope, I shall
venture to trouble you with many
an enquiry & endeavour to
find you able to answer them
about it: if it would not bore
you. I must set to work
now at once at "Genera Plantarum"
& "Flora Indica".

Gray tells me that you have
been poorly. I am exceedingly sorry
to hear it. I still look back with
intense intense pleasure to our drives
in the forests, & should be much
pleased to repeat it. I wonder if
when I go again to America you
shall get leave to go with me & be
Companion forever? Shall we two
? Christian with us! & live with kind
eyes & the Lord bless you
sincerely W. Hooker.

Cactus Skeletons

Rec'd Oct 30

Dec 15/78

My dear Engelmann

I find an unanswered old date letter of yours to Dyer (which I had taken him I would answer) offering us for our Museum specimens of Cacti showing efflorescence of prickles. Were such would be curious & interesting to us. & if you can collect & spare them please send them "via Smithsonian".

After I wrote to you the other day, I found at Kew a fine cereus of what we call Cereus Peruvianus in England - always with the stem in verticillations & fabulous with bluish tint of foliage. Stem P. pendulus. The cereus is some 6 inches long.

I have asked Mr Gardener to look out for young Conos (Pitts & Saddles)

I have been arranging all the Conifers of our Herb.; intercalating the last few years' collections, & bringing the rest into some order preparatory to the work of Mr Gen. Plants; when I hope to look into the species. Meanwhile I shall keep your precious remarks.

Did I tell you that Mr Sprue & I have been endeavoring to distinguish the R. Mt. A. Menziesii, (the literally flattened leaves of which you have observed) — & to follow you in keeping it distinct; but we find it quite unidentifiable — the characters shaden off, & there are so many other forms of Menziesii quite

in detail. I think that when really definite & enduring characters cannot be found, the best way is to make designated varieties with abbreviated names. Perhaps if you like of the R. M. Mexicana.

Yours Engelmanni ~~Conzelm~~ come always recognizable recognizable: it has always the naturally flattened leaves.

No doubt you are right about ab. Sonbaldpiana, & that it approaches valacomes more than the western ones. As to arnebaldi, grenelis &, I am old at sea about them. I recognize with you the coarse form of an true grenelis. But it seems a hasty phrase to pass i.e. your Shasta & California conzelm, that lumped with the Sierras & the Peta conzelm on the California Sierras & a Shasta specific that we regarded as a form of one. or Mexicana. Meanwhile, I think that lumping

that he thought the littoral plants c
var. of U. Scirpi cum – but do not ~~quote~~ cite
this intermed. combination. Matter the
littoral form to have dark green leaves
rather short & very spreading.

These rambling notes are not of
much use – & wouldn't do for quotation.

If I could get some one with time
to anatomize the leaves & so carefully
cover the Museum specimen of cones, I could
better judge (i.e. what use can this & numerous
other young cones) are beautifully & carefully
I saw no young plants at all like the
others in California.

If I should be very glad of good Rusby hab.
specimens of both conidia & uredospores
as I may have confounded them.

You say P. aristata should bear the
name of Balfouriana – but I think
this is carrying the priority claim too
far. No one could make out P.
aristata by Murray's description figure or
specimen. – True enough, often aristata was
variously described, you can identify Balfouriana
with it by comparing specimens & they only
with the aid of you make sufficient allowance
for misapprehensions of specimens & errors of description.

Hon Mark 18th
Aug ——— 19th

Newl 5/79.

Dear Dr Engelmann

I am truly distressed to hear of your sad bereavement, & beg to offer to yourself & your son my most sincere sympathy. I know what I felt myself under similar ~~circumstances~~ distressing circumstances, & can only hope that time & circumstances will bring relief to your mind & happiness to your home. I rejoice to hear through our friend Gray that your son is convalescent after his fearful illness & may he be a comfort

Sir Geo —

I have had another time at the Pines, endeavoring to come to an independent conclusion — without reference to your opinion. — in fact with the Garden, the Herbarium & the Gardeners types (based as his determinations ~~as they~~ are the types of them are in useful) & the Synopsis of Florida, a very acute man who has the highest opinion of your work. We cannot fully agree with your conclusions, except as to Cuscuta being a Sierra plant, we cannot trace Sierra —

The Cypress with any Californian grounds specimen, either in the Nursery or in nursery

by descriptions. – I have been descriptions

however to break off the work, work

owing to the serious illness of the Gardener, who is in almost a hopeless state, which throws an enormous enormous amount of labour on my hands.

I must take your kindness for granted & that you should communicate to me.

1. Nursing the strongest shoots & branchlets of albo Nut on plants, the weaker & even old trees are neglected.

2. There are stomata on both sides of the Pacifica Menziesii, as on the Ital.n leaves of Sitchensis.

3 The celebrated of the Colorado
Mengieni (~~[illegible]~~ 5–8, usually
7.:— of the Pacifici 4–6, usually
5. — The above from combined
observations of 1000 d of leadings

Mr Sprue is delighted to go along
with you in separating the
R. M. from the Pacifici Mengieni.

This is a very fragmentary
sketch. You must be content —

Believe me
Ever sincerely
J D Hooker

I fear that I have not seen
Entomologica Journal of July 15 to which
interested me & Mr Sprue much
Mr Mareyard to the pungency of R.
Mengieni — I always upheld it, but Grey
laughed it to scorn & truly enough I was
Truly

Dec Mark 18th 1879

Lovely pink to the fine Pennsylvania specimen in Colorado such as we have in England: but at least I did so in the Flamen form. The Grass dry was satisfactory.

I shall send you notes to the Gardeners Chronicle, they will be most useful

Do you know Pinus Monophylla? We have 2 plants so called, both from Edinburgh, presumably from Jeffrey seeds. One is very like Contorta but with very different bark. The other looks like monticola, but a wonderfully robust healthy plant with very thick shoots.

[signature]

I have 2 O.C. [illegible], from the C.
[illegible], [illegible] the [illegible]
[illegible] [illegible] [illegible]

Rec April 28th
Ans May 2d

Rec April 14/75 79

My dear Dr Engelmann

I perused the questions in your letter to Mr Sprague, which refers to his knowledge of the American Pines & as far as I can with pleasure to Dr & as I think you will be interested in his remarks, I send a copy of his whole letter.

I have talk Gray officially & relating to respective that the White bearing ~~pines~~ species ~~pines~~ of Florida should be found on the Sierras. The only two these we found there were Pinus Lambertiana & Lowiana, both had very dark brown bark – we could not have overlooked a tree with a bark as white as cornelian. & I looked at bark most closely & attentively & entirely free of Coniferae from magnificus of the bark alone. I do not say that cornelian & the Sierra plant are

not the same species, but of the other
class of bacillaceae for nothing. — & of course
too — for many the Sierra plants have
the flamboyant hue of cinnabar.

As to Selloyne & Pendulum, I cannot
help your Grace's ever making nothing
out of autopsy! — The other order touch
for nothing. & on seeing no of flowers. —
Now certainly looking out for
flowers is the New Plants — but we
no upper yet.

We have two P. Murrayanus, one as
you say of Mandle in ~~cinnabar~~ cinnabar. (the bacillo
bright green form of ~~cinnabar~~ cinnabar is the most. show distinction of all
the genus; (it is supplied visibly — very
lovely) — the other apparently a
much vigorous ~~tuberculata~~ muricata.

As to Sierra Pungens, I agree it is
not always innocent. The Colorado Pet. —
I take Gray & Mandle always know of
their character — the language at me —
& surely enough I was put out, by
the fright they can say being leaves
that ~~that~~ cover not so stiff as Pungens is with
us, but more like those of Pungens tree.

both entirely planted practical
Journey * Gray & Thurber
that then was a perfect
for Prairies & Engelmann -
both I was very ignorant especially
when I began & had no idea
that there was any difficulty
about the N. Am. Prairies! -
I am heartily glad that
you are taking again to Botany
I do believe that the study of
nature is the best safeguard
against despondency that would
otherwise overtake us - but you
have your dear little to see - &
that is our best comfort -
I should much like to see him
again, we were all so much
pleased with him - & perfectly
so much by his sweet &
intelligence. I am sick very

Busy with Sabbatean, I have just completed the order. Bunge's work is admirable, so accurate & the descriptions so well "put out." I think at once proceed to Polygonaceae. Bentham & I even looking at Leitneria by day & we have agreed to make a Nat Ord of it.

With kind regards to you & Mrs Engelmann

Most truly yrs

J. D. Hooker

Letter to Hooker, May 2d 1879

--- I have a few weeks ago sent you some glaucous branches of the ~~Rocky Mountain~~ Sierra Abies concolor, which, I thought, would reconcile you to the idea of "specific identity" of this form (Lowiana) with the Rocky Mountain concolor. You was sent by Mr Lemmon. In England you have thus far cultivate only young trees of this plant with longer, thinner, more grooved leaves and with fewer stomata on upper surface. Only the leaves of older trees especially of flowerbearing branches are shorter, broader, convex above and with more stomata. I have all along insisted on the difference of all firs the foliage of young trees and lower sterile branches, and of those of old trees and especially their (upper) flowering branches. I will add that I had separated in my herbarium numerous specimens, mostly obtained: European Bot. Gardens and nurseries, some from California; they had puzzled me a good deal and were finally separated from the original concolor and from some Sierra forms just on account of these characters. But at last the conclusion forced itself on me that they are most probably a juvenile

2.

state, as I have never seen fertile branches with such leaves.

Now, as to the bark. You have studied both trees in loco and therefore must know more about it than I do. But I will give you my reasons. Bolander many years ago in describing the firs of the Sierras (and reading specimens) designated one (your Lowiana) as the white fir (vulgo so called) and the other (our magnifica) as the red fir. And, more than that, I have here before me wood and bark specimen from Lemmon (same trees from which the Centennial specimens were cut). A young Lowiana, as I will call it for the present, has whitish bark; an old and very thick one has a bark 2 or 2½ inches thick, much cracked, ashy gray outside, darker, perhaps pale reddish brown or cinnamon within. The young tree of magnifica is smooth, dull or dirty reddish; the old bark is 3 inches thick, dusky, dark outside, bright red brown inside. Lemmon in a Sketch on Cal'y Conifers calls the bark of the former also "ashy gray"

Parry tells me, he never thought the Utah and California trees could be the same; the former round-topped, the other a beautiful

pyramid etc — but in the glens at the foot of Pikes Peak and near Manitou I have seen the most beautiful specimens of True concolor.

Dont the climate of the Sierra make all this difference? as it does in Pin. ponderosa and contorta? Geographical varieties!

I will not speak of the unimportant characters of the size of cone, a few more cotyledons or the more rounded bract, which Mr Sylvester urges; but please compare Parlatore in DC. who describes the original Hartwegian Concolor (from my herbarium) with obtuse or rounded bracts, without mucro; and thus they appear in that specimen.

Pinus Murrayana was founded on Jeffrey's 740 of which number Rev has a long leaved and the Edinb. Herb a shorter leaved specimen; both from Mt Shasta. In the next year Jeffrey collected what was considered the same, and it was distributed under the same number at Walker's Pass, with still shorter leaves. All these 3 original Murrayana come from high Mountain regions, where no muricata grows, which is said to be a seaside tree, or at least only near the sea shore. Muricata is a most

4.

variable tree, always within reach of seawinds, it is said, and never on higher Mountains. I possess cones with very long spurs, almost like miniature Coulteri, and others with not as strong prickles as pungens or even rigida. This latter form occurs near Meadows in contact with Bolanderi. Hence probably the confusion of seed dealers and consequently nurserymen. Bolanderi, I repeat, is = Douglas' original coast contorta from Mouth of Columbia; the narrowleaved, gnarled (by the sea winds?) tree, which in the Mountains is higher, straight and broadleaved. (the coast plants) And I have not seen its bark, which is so characteristic in the Mountain form — and perfectly identical with that of the Colorado tree. Douglas' true coast contorta grows as far north as Sitka, but from the north I also get forms intermediate between the narrow and broad leaved form.

It may be, that Pinus pungens is not always pungent as you say, but most observers describe it so from Lamb, the original discoverer, to this day, and my specimens also prove it. But it is the gray, cracked bark, which

which I have often studied, and of which I have specimens, distinguishes it from Sitchensis and Engelmanni. Of the former, Sitkensis, I have seen and noted large wood-specs in the Centennial, 1 a small tree 1½ feet diam 65 years old; bark a little more than 2 lines thick. 2, an old tree at base 16 feet diameter" cut 98 feet from ground 5¾ feet diameter 220 rings, bark 3 lines thick. In both specimens the bark is cinnamon brown, separating in conchoidal flakes.

Now as to Cotyledons. It is much more satisfactory to study them in a nursery, where you can compare thousands, than to pick open a few seed, — which I had to do; but seeds from Oregon and from California both gave me 4 Cotyledons. I know well enough, however, that their number is variable, within limits. But studying the growing Cotyledons since a number of years whenever opportunity offered, I have learned to appreciate another character, and I am truly thankful to Mr Lyons for his specimens for they were the

first Sitchensis seedlings I was able to examine.

The Cotyledons of Abies are triangular-flat ( section) or flat with a more or less prominent Keel on the upper side, always entire. — Leaves stomatose on the upper side, or always stomatose always on upper side more on the under than upper side.

The Cotyledons of Picea are triangular-high ( section) usually narrower than high, with a very prominent Keel; the Keel is entire in some, spinulose denticulate in others. — The first leaves of young plants are entire or spinulose on upper and lower Keels, always laterally compressed. Leaves of Picea always with more stomata on upper than lower side

Now, how are the young leaves of Sitchensis seedling? I suspect already stomatose above. The Cotyledons are about as high as broad,  sometimes even flat and are thus distinguished from all our other Piceas; they are not semilate which pungens Cotyledons are.

I do not repeat what I said before about the narrow oblong wing of the small seed of Sitchensis, in the broadly obovate wing of the large seed of pungens.

But I have a new character for Sitchensis, in

the large ~~scale~~ bract of Sitchensis (1/3 – 1/2 length of scale) and the very minute bract of pungens. – Bongard calls the bract of Sitchensis 1/3 the length of scale; it is often 1/2 (see Candolle p. 123) It is the only species of Picea.

As to the name, I have long ago conferred with Gray, who is very careful in these things, and he approved the change as well as the retention of the name of Pin. tuberculata, though now by common consent it indicates something very different from what Don meant, when he thus designated a 100 foot tree from Monterey – evidently a form of insignis.

P. Nigra, Taylorianii and Sitchensis with entire cotyledons – young leaves, alba & pungens with serrulate keeled ones. – – –

I lay no great stress on presence or absence of stomata, but usually there are few or none on the lower side of Sitchensis – – –

Lyall's specimens from all along the line must be carefully studied and his authority can have no weight, because neither he nor any body else distinguished at that time

~~Sit~~ the Pacific coast from the Mountain Spruce.

It is quite probable that pungens may grow all along the Mountains eastwardly and meet Sitchensis perhaps on the western slope. This latter is always considered a seaside or at least lowland tree; "Rocky Mts. at an elevation over 500 feet" (Oregon Exhibition in Mobile)

— The San Bernardino Douglasii is not its Douglasii var. macrocarpa Torr., Vasey's species of macrocarpa. Torrey is probably right.

Rec May 21
Ans — 25

May 8/79.

Dear Dr Engelmann

I am very much obliged for the Cirsis & Lemnis Alpis — When I was in at Trenton he told me that he had two forms of the genus, one with red & the other with yellow

bull scales.-
Neither Sequoia nor I can
make anything but
conclusion of Kennan's
experiment: & so the
matter must rest till
some skillful man like
yourself goes to the Sierras
Neither Sequoia nor I could
pretend to any intimate

to that with

Knowledge & Veld. What we
can say & swear to is,
that we saw no pale
or white barked trees
in the Sierras - or any so
white a barked branch
as the Colorado cercocarpus.
I do not think we can
have overlooked such.
anywhere on our route
from Yosemite to Shasta.
I send leaves & seeds
from the Yellow Pines.

Can you name the enclosed
2 seeds, wh. we have as Pinus
of P. maurocarpa?

We have 2 forms of P.
Sabiniana which one with
dense foliage & pendent leaves
— the other the most skeleton
of all Pines with few large &
spreading leaves.

I shall soon send you a
photography of a cone. which
struggles me.

Ever with kind regards to you
Dear Engelmann Yrs

J D Hooker

Rec Davenport Aug 12th
Ans Aug — 19

July 26/79

My dear Dr Engelmann

I have yours of June 20th & having never "any thing better to do" than to read your letters I have acted up to my pleasure & duty in so doing.

I am indeed disappointed to find that you are not coming to England, nor either your Son either. I hope better a wife that I the Gardeners with you, I so have met your Son & the way of much that he would have liked to see.

There has not been a bale of flowers on any of our P. Jeffreyi or Ponderosa (alias Benthamiana) but a good deal of O & I am drying for you some of the O of the Jeffreyi, which I think you would like to - It is no way that I see differs from O Ponderosa except in

looking decamperatae, & what is the character of all the specimens we have of that tree - they look like thin half starved specimens with a few foliage.

I thank you very much for the seeds of the big coned pine - they are most useful & show that some of yours are wrong named

I send a photograph of a cone of so called ~~supposed~~ Coulteri from the Knoxville Nurseries which is much smaller than the typical plants of that name of which we have cones, & with far more numerous scales. The photograph is by mere the natural size. I do not want it returned.

After I sent off both cones of Bonapartes Rocky Mt Coulteri which are

not like those from further west which we have.

Flora of Canada has come for September the 20th. B. M. just north of the boundary & have asked him to look out shark for the Conifers. I see that Coue has published a list of Dakota & Montana plants. & that a Engelmann pequias amongst them. but he makes no mention of pendenos or of any abies but balsamea!

What you say of California being so much a land for Darwinian theories, is curious: no doubt it is so as compared with Eastern N. Am. where species appear to be remarkably constant; but I should think that Europe would match California which is enough for many of the worst genera as Salix, Rubus, Rosa, Carex, Poa

I should agree with you (judging from cultivated specimens) in thinking P. macrocarpa a variety of contorta. & I should have thought

that Balfourianus & amabilis were such
even varieties; certainly it neither
carries in the distinction half so good as
between Sitchensis, Menziesii, & Douglasii

I have not known that the bud scales
would separate P. alba & nigra, & am
delighted to hear it, for I am hardly
prejudiced by these two gentlemen's
garden here when not in fruit. Gray
says (Manual) of a dark form of nigra
that it is "understriped below from alba
" except by the fruit" — young nigra fruit
freely with us, but not alba.

Yes the Pseudocrius grandis is our
amabilis.

I have not had an opportunity of
collecting old specimens of the cultivated
Abies Lowiana (conica?) R. The shrub houses from
which you sent is very curious. I shall go
to Lainburgh this autumn & hunt up
the old specimens there. From what I hear
many have lost their history, which is a
very great pity. I will let you know the
results.

Gardeners Chron. Aug 16

Gentlemen, as you know working with the genus of Conifers for Gen. Plantarum & I am much interested in the work. We were very much astonished at the Dodecadrus & including it in Thuya, but have appreciated very much the complimentary to its curious Pauper distribution! The Chilean form seem to connect it with Thuja & some species of Thuja in Asia. We can quite imagine how to divide old Genus generically & shall have to search for habit & fructual characters.

Thanks for your note on Vitis. As to my curious, I wonder whether your distinction character between Vitis & Ampelopsis would hold in the Old world.

I have been labelling specimens in America below in the Arboretum – we have a respectable collection. Can you name enclosed off-hand? Some

Q. nigra?

[illegible]

[illegible]

[illegible]

[illegible]

Rec Dec 18
Ans Jan 14 1880

Dec 4/79.

My dear Engelmann

I am so glad that you have given me something to do - however small, for then I am bound to thank you very sincerely for this good instructive letter - the description of California Coniferæ & the "clavis" of Pinus -

I am very pleased with both the last - though still puzzled by the white bark under of the Sierras, - & at finding no young trees there at all like our young seedlings ~~Conifers~~ conifer. The only thing remains I have to

Are I have received Pinus Sabiniana for several years, but much my own seeds

make it on the reported frequency of nebulis in the Sierras - Gray & I misjudged it..? for though we get cuneus with nebulis rather I did not recognize my bro with the leaf of our Garden nebulis. - Meanwhile we get, & what is here called Lonicera, both of which should have included beauts. - so I can only suppose that I did not recognize the nebulis portion of the bro that produce the essential beauts - I must look again at the specimens we collected.

I wonder if you had time when
Cambridge to arrange or examine Gray's
fine collection of Lichens — How I wish
you could move the entire herbarium
collection — occupying treble the
space you saw it filling — & most
of it terribly correctly named.

I am delighted to see the clearing
& the abandonment of the old
1, 2, 3, 5 divisions which removed
useful for Gardeners & for many
purposes is utterly unscientific.
I think your arrangement is as
nearly faultless as maybe, that is
in so far as I know the Flora.
There are perhaps rather too many
sections, but a reduction of them
if necessary will not alter the
grouping or in any way dislocate the

The series.

We have had a great amount of work this winter in the transport of the vegetable products of the Indian Museum to Kew, which will entail many months labor. I have been occupying my spare moments with the "Genera Plantarum" & "Flora of British India"

Your counsel in the matter of the Conifers has been invaluable to us. & I hope the order will appear in a better condition than any previous attempt?

You will be interested to hear of the discovery of the true form of Cedar of Lebanon on the Peak of Cyprus – it is quite the Algerian form, smaller cone & very small white silvery leaves – with kind regards to your son

believe me very truly yours

J D Hooker.

Rec Feb 10

New York 6th 1880.

My dear Dr Engelmann

Allow me to introduce to you my particular friend Mr. Booth of the celebrated Klein Flatbush Nurseries near Brooklyn, who – & his fathers have been 30 years continuously made such magnificent contributions of trees & shrubs to the Arboretum

of Kew. Their names are
not strange to you — I know.
& the Kew Reports have
given you valuable support.
Mr Worth is devoting himself
to the entomology of Armenia
has visits Persepolis, & at the
same time collecting scientific
information relating to your
forests & to Mr Cull Papers
for the Quart. advantage of

correspondence with you. to
please accept my personal
introduction & believe me
to remain
yours
J. D. Hooker

Dr. Engelmann
St. Louis
Missouri.
M.R.S.

Rec April 13

March 20/80

My dear Engelmann

I hope you received the Cone & seeds of Pinus Canariensis, which I despatched immediately after hearing from you of the smash of the seeds sent in a letter:— & that they served your purpose.

I have been driven off Conifers since writing last — my days in the Garden being devoted to "planting out" the fine collection we have of Ostrya, Carpinus, Castanea, Fagus & Corylus, in avenues, each genus of the clf — an operation

requiring a great deal of personal
supervision both with respect to
the direction of the avenues, re-
moval of dead trees, the soil (which
varies exceedingly) & the classification,
which I "generally" adhere to. This
completes the arrangement of the
Arboretum, over which I have been
occupied nearly 12 years & more, &
which extends over nearly 300 acres
of ground. –

I see amongst the Pines mentioned
in the MSS classification which you were
so good as to send me, that you
put P. pyrenaica with halepensis
I find we have 2 plants so called
on the P. Austriaca, which I can hardly

distinguish from Kalchbrenner, the other is a Laricio with red branches. I don't know what you know of this, it puzzled me, but I find that Parlatore notices it.

Do you know Engelmann's distinct from Pinderene? If so can you send me some of it? also of arizonica, a species I do not know.

x. Greggii only single sp.

You distinguish Pygmaea from Mandschurica, it seems curious that the former should not belong to the group with cembra.

Can you distinguish Laricio from austriaca? & Thunbergii from densiflora?

P. Greggii I do not know anyone.

I see American botanists put serotina under rigida, but which are our observers of serotina (as well Taeda), are frightfully mistaken & the point, rigida is unknown.

I have pointed out what is also our specimens seemed to be a good distinguishing character of P. Jeffreyi, which

in the glaucous young shoots; these in Pendrone being shiny & green. I can distinguish all our species easily by their character when the shoots are young.— The T. H. seems quite undistinguishable.

The character that distinguishes P. Balfourii from aciculata is a white granular exudation, like grains of white sand here & there (very distinct) on the leaves of the former.

I shall be very curious to know what Siberia's Picea is: the leaves you sent are unlike any thing else.

I will try for Picea omorica, & if I get cones will send you some.

Have you cones of Picea or Abies Fortunei? (Ketelaerie)?— if not I can send you one. The leaves are of Abies. The cones have the persistent scales of Picea, but are crab to like Abies!! I have

unfortunately no T.P.

There are 3 forms of cone of P. contorta Doliandesii: a fourth

1. A small broad cone with small basal scales (like the stem) & slightly reflexed prickles, brown
2. Ditto with longer straight prickles
3. A much longer cone with loop-like basal scales on upper side (much as in P. insignis) & ascending prickles. with cones

Nos 1 & 2 seem more western & latterly 3 is the common Californian form.

We have cones from of 1. quite unlike any others, & of a most brilliant green. I send a branch with cones together with a branch & cone of another N. American Pinus which I cannot name.

Is it P. mitis that has a rough-barked & bunches out-leafy sprays all along the trunk? we have 2 trees of it, & neither fruit. (I find a num. Kew Gardens specs 1869 P. mitis with adventitious buds on trunk

Yours very sincerely

Sprouts mentioned pag 163 Introductory

J. D. Hooker

1 = Pinus contorta

2 = P. insignis ?

Merkusii 12 to place now 26

Rec'd May 12th
Ans June 10

April 27/80

My dear Engelmann

I have just received your beautiful & most interesting work on Pinus. It will last many years I am sure – it is such a capital piece of work. The fine capsules of the Catalpa & the green alone attracted my notice: the P. O. on your side of the water are being over-worked

I received in evening a
letter from the P.O. asking me
if I would buy the 4 cents
note, but not saying what
the packet was or from whom
it came — I wrote saying
yes — send it on. & I am
glad I did so.

I am also glad that the
Pines & Grandmine came
arrived in time.

Quite forgot to mention
note with the two Pines,
seeds — but I supposed was

(as I am sure I did)
contents, but it grows quite
amiable on others & in fact
must lovely green. The other
I am glad to hear is probably
insps, for I could make nothing
else of it.

I am so glad that you are
pleased with the Conifers of Ser.
plant. Bentham worked
tremendously hard at them, &
I dear my little Sapiebla as
helper in certain cases.

Yes the winter, & early last
summer were been down as ill.
P. insignis, many often killed, dilata
tuberculata here & there &
muricata. Montie killed,
pinea much mutilated by cattle

Scottiana nor Abies is hardy &
nor Picea is touchwood, except
Abies Nordmanniana which our cannot
grow at all.

As to the age of Pines I should
mean thought that P. flexilis attained
a tremendous age. The wood is like
iron, & the rings are countable.

The variability of the ducts P. ponderosa longifolia & excelsa is
a staggerer.

I must look to Griffith's 4993, the idea of
its being Larix is monstrous – delta
of Griffith's 4992 being Mayeriana, the
given doubt by Cattellii, (lately discovered ~~found~~)
Cattellii
which has a peduncle some like, halfpenny
We want good cones & of Arizonica
Chihuahuana, Stelva & Wrightii.

Ever sincerely
D Hooker

Mr Syme is now head of the Bot. Garden Jamaica. He writes that Abies Fortunei is a good Conifer (= Keteleeria). - We had not shown enough to do any thing with. He calls the classification of Conifers in Gen. Plant. "immediate starting" He is writing to Mr Chancey Reis into Cupressus, saying that the annual maturation of the seeds of Chancey's is its best character. There is much to be said for leaving Thuya as it was & putting the two C's only Kellinisporus together as Cupressus.

Rec October 20th
Ans Jan 15 1884

June
Jan 22/83.

Dear Dr Engelmann

We have been expecting hearing H- his capsules announced: you kind letter of April 30th & more delighting of it, I write to say that it has been announced!

You request for the microscopic Mimiantheys fruit arrived too late, but I write to let you know you for you. The plants forms every winter the red letter cones figured in Bot. Mag - with succulent scales, but there have never yielded us any seed - they become leathery & turn brown & dry, as in the specimen I sent-

by book yesterday. If you would like it I will put both D & G into decanters for you next winter.

I am glad to hear that you took all your interest in Conifers over a Pinetum is opening fine prospects. I long to show it to you – & I do hope that you will come to England this year or your Aunt's respects. I shall be at home, at or near Kew all the summer

I should much like to show you our Pines – the Monkeyrania

both & <u>unique</u> let me
meet happiness.

I have seen a good deal lately
of Ab. Crocker — it is I think
a well marked form, whether
or no to be added to <u>Lasiocarpa</u>

I should also like you to see
some intermediates between them
3 leaves. & many other things.

Do you know any thing of a
Pinus from Honduras, we have
just received one like Teocote.

Will have need report to me
to

In haste yours
J. D. Hooker